

EMC® CLARiiON®

AX150/AX150i



Storage Hardware

EMC® CLARiiON® AX150 series disk arrays enable small and medium businesses (SMBs) to easily consolidate and share data storage among multiple servers and improve storage reliability. The AX150 series combines EMC's renowned CLARiiON RAID architecture with Serial ATA II (SATA II) disk to deliver high performance SAN or direct-attached storage at a price that won't break your budget. The array's speed and reliability also make it ideal for backup to disk. AX150 series arrays are available with Fibre Channel (AX150 models) or iSCSI (AX150i models) connectivity and with single or dual controllers.

Simple, scalable networked storage for SMBs

Ever wish you could take storage capacity from a server with plenty to spare and give it to a server that needs more? With AX150 networked storage, it's as easy as a few mouse clicks. AX150 arrays provide a central pool of storage that you can share among 10 servers running Windows, Linux, Solaris, NetWare, and VMWare. If capacity runs low on any server, simply allocate more from the pool or reallocate capacity from other servers. The AX150 and all servers remain online. There's no interruption to applications or users. Add disk drives to expand your total capacity as your needs grow. If a server should fail, recover quickly by reassigning its storage to another server connected to the AX150.

AX150 series arrays are easy to set up and manage. The EMC Navisphere® Express setup utility guides you through a quick, four-step installation process and enables you to configure and manage storage from anywhere on the network. A hot-swappable design makes the AX150 series easy to maintain. All major components—drives, power supplies, cooling fans, and controllers—are user-replaceable.

The AX150 series scales from 750 gigabytes (GB) to 6 terabytes (TB) of total storage capacity. It utilizes 3 to 12 high-capacity SATA II drives in a 2U (3.5-inch) rack-mountable enclosure. SATA II drives have faster data transfer speeds and Native Command Queuing that streamlines execution of multiple read and write commands, allowing them to outperform previous generation SATA drives for I/O-intensive applications such as messaging, databases, and file serving.

AX150 series arrays also include a nondisruptive, array-based snapshot capability that provides additional restore points between daily backups and enables offline testing or data mining. With the press of a button, you can instantly capture up to eight concurrent snapshots for read-only access by a secondary server.

Single-controller and dual-controller arrays keep data available

AX150 series arrays come with single or dual storage controllers. Single-controller arrays offer high-performance storage at low cost. They are ideal for your first storage area network (SAN) or for backups to disk. Dual-controller arrays are designed for your most critical servers. Both single-controller and dual-controller arrays include CLARiiON RAID 5 and RAID 1/0 technology to prevent data loss if

a disk drive ever fails. You can also designate one drive as a hot spare. If a drive fails, the array automatically replaces it with the hot spare to maintain optimum RAID protection of your data. Arrays with a single controller have 512 megabytes (MB) of controller memory and battery-backed cache to protect you from data loss in the event of a power outage (up to 96 hours). Redundant cooling fans and an optional second power supply provide an extra measure of reliability.

Dual-controller arrays are designed for high availability and have extensive redundancy to prevent an outage due to a single point of failure. They have 1 GB of controller memory, dual active-active storage processors, mirrored cache, and dual hot-swappable power supplies. Path management capabilities balance data traffic between controllers to optimize performance and provide failover to one controller if the other stops functioning. In the event of a power failure, a fully integrated rack-mountable uninterruptible power supply (UPS) prevents data loss by prompting Navisphere Express to gracefully shut down the array and ensure data in cache is fully written to disk.

Flexible networked or direct-attached connectivity

AX150 series arrays give you the flexibility to meet your specific network requirements. Arrays are available in Fibre Channel (AX150) and iSCSI (AX150i) models and come with single or dual controllers. Both models support two-server clusters.

The AX150 provides two 2-gigabit Fibre Channel ports per controller, allowing up to four servers to connect directly. The AX150 provides shared storage for up to ten servers in a SAN when connected through a Fibre Channel switch.

The AX150i provides two 1-gigabit Ethernet ports per controller, allowing up to four servers to connect directly. The AX150i provides shared storage for up to ten servers via iSCSI when connected to a Gigabit Ethernet switch (sometimes called an IP SAN).

World-class service and support

AX150 series arrays come with a one-year system warranty with five-day/nine-hour telephone support and next business-day parts replacement. Optional premium maintenance service contracts are also available in certain locations throughout the world. Consult your EMC Velocity² SMB channel partner for details.

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Specifications

Host (front-end) Connectivity

	AX150 – Fibre Channel	AX150i – iSCSI
Ports	2 per controller	2 per controller
Port type	2 Gbps optical	1 Gbps copper
Protocol	FCP SCSI-3	iSCSI
Operating System Support	Windows, Linux, NetWare, Solaris, VMWare	Windows, Linux
Maximum cable length	Shortwave Optical: 300 m (2 Gbps) FC-AI and FC-SW support	CAT5/5E and CAT6 Copper: 100 m (1Gbps)

Host Scalability

	AX150, AX150i with Single Controller	AX150, AX150i with Dual Controllers
Hosts connected directly	2	4
Hosts connected to SAN	10 (1 HBA per host)	10 (1 or 2 HBAs per host)
LUNs (virtual disks)	256	256
Snapshot LUNs	8	8
AX150s per host	4	4
Clustered hosts	4 nodes	8 nodes

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Array Scalability and RAID Levels

- Single or dual (active/active) controllers; each controller connects to all disk drives
- Up to twelve hot-swappable 250-GB or 500-GB SATA II drives, providing 750 GB to 6 TB of raw capacity
- Configurable global hot spare drive
- RAID 5: independent data access on 3 to 12 drives (with striped parity)
- RAID 1/0: data mirrored, then striped across 2 to 12 drives

Drive Interface

	250-GB SATA II	500-GB SATA II
Formatted capacity (520 bytes/sector)	233 GB	465 GB
Form factor	3.5"	3.5"
Height	1.0"	1.0"
Rotational speed	7,200 rpm	7,200 rpm
Interface	1.5 Gbps Serial ATA II	3.0 Gbps Serial ATA II
Data buffer	16 MB	16 MB
Transfer rates (controller to/from buffer)	150 Mbps (max.)	300 Mbps (max.)
Access time (average seek)	9.0 ms read	8.2 ms read
Rotational latency	4.17 ms	4.17 ms

Dimensions (approximate)

Rack-mount Chassis for Single-Controller Array with Battery-backed Cache

Height	Width	Depth	Weight
3.415 in. (8.68 cm), 2 EIA units	17.72 in. (45.0 cm)	24.5 in. (62.3 cm)	48 lbs. (21.82 kg) max.

Rack-mount Chassis for Dual-Controller Array with UPS

Height	Width	Depth	Weight
5.165 in. (13.12 cm), 3 EIA units	17.72 in. (45.0 cm)	24.5 in. (62.3 cm)	98.3 lb. (44.59 kg) max.

Power

	Single-Controller Chassis	Dual-Controller Chassis
Power supplies per array	1 (optional second)	2
Frequency	47–63 Hz	47–63 Hz
AC voltage	90–264 Vrms, single phase	90–264 Vrms, single phase
Power factor	.96 (typ.)	.96 (typ.)
Power consumption (maximum)	275 VA, 250W	360 VA, 326W
Heat dissipation (maximum)	850 Btu/hour	1,110 Btu/hour
Protection	10 A, internally fused	10 A, internally fused (each supply)
Power supply	Single external AC circuit (optional redundant circuits)	Redundant external AC circuits
Inlet type	Single inlet IE320-C14 appliance coupler	Dual inlet IE320-C14 appliance coupler

AC Power Capability

- 40U Cabinet (optional)
- Dual Inlets
- NEMA L6-30P or IEC309-332P6 or Australia (Clipsal 56PA332)
- 200–240 VAC +/-10%, Single Phase
- 47–63 Hz
- 4,800 VA @ 200 V, 5,760 VA @ 240 V
- 30A, 2-pole circuit breaker

Operating Environment

- Temperature 50–104 degrees F (10–40 degrees C)
- Temperature Gradient: 10 degrees C/hr
- Relative Humidity: 20% to 80% (non-condensing)
- Altitude
 - 8,000 ft. (2438.4 m) @ 104 degrees F (40 degrees C) max.
 - 10,000 ft. (3048 m) @ 98.6 degrees F (37 degrees C) max.

Electromagnetic Emissions and Immunity

- FCC Class A EN55022 Class A
- CE Mark VCCI Class A (for Japan)
- ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia/New Zealand)
- EN55024 Immunity, ITE BSMI Class A (for Taiwan)

Quality and Safety Standards

- UL 1950; CSA C22.2-950; EN60950
- Manufactured under an ISO 9000-registered quality system

EMC Insignia

The AX150 series is part of the EMC Insignia line of software and hardware products, which enables small and medium businesses (SMBs) to store, manage, protect, and share vital business information. To learn more about EMC Insignia, contact your authorized EMC Velocity² SMB channel partner or visit www.emcinsignia.com.

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